

*Eng. Hist. Topogru. vol 10.*

## **PORTO-BELLO:**

**O R, A**

**PLAN FOR THE IMPROVEMENT**

**OF THE**

**P O R T A N D C I T Y O F L O N D O N .**

**ILLUSTRATED BY PLATES.**

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**B Y**

**SIR FREDERICK MORTON EDEN, BART.**

**A U T H O R O F "THE STATE OF THE POOR."**

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**BID HARBOURS OPEN, PUBLIC WAYS EXTEND. POPE.**

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**L O N D O N .**

**PRINTED FOR B. WHITE, FLEET-STREET.**

**1798.**

СИБИРСКАЯ  
ГИДРОЛОГИЧЕСКАЯ  
СЕССИЯ

БИТ №

УЧЕБНО-УЧИЛИЩНАЯ

СИБИРСКАЯ СЕССИЯ

СИБИРСКАЯ ГИДРОЛОГИЧЕСКАЯ  
СЕССИЯ  
СОВЕТСКОГО Союза  
СОВЕТСКАЯ АССАМБЛЕЯ



СИБИРСКАЯ ГИДРОЛОГИЧЕСКАЯ СЕССИЯ

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СОВЕТСКОГО Союза  
СОВЕТСКАЯ АССАМБЛЕЯ  
1951

To attempt to affirm all of your knowledge

**T**O most of the inhabitants of this great metropolis, the improvement of it's Port, it's Streets, and the various accommodations now become absolutely necessary on account of it's increased Trade and Population, is a matter of moment, as it respects their convenience or their interest : as a display of public spirit, and of national taste, there is hardly a person in the kingdom to whom it can be a matter of indifference. Accordingly it has, for some time past, with great propriety, been a topic of very general discussion ; and many Plans have already been offered to the Legislature for the Improvement of the Port of London. Most of these Plans, the Author of the following pages readily acknowledges, clearly evince the abilities of the persons who proposed them : the perusal of them has afforded him much information and pleasure ; but he hopes he shall be pardoned if at the same time he declares, there is not, among them all, one which is not liable to material and great objections. That any thing which he can suggest may not be equally exceptionable, he is far from imagining. Having, however, (though prompted merely by curiosity, a love of science, and a sincere wish to promote the prosperity of his country,) bestowed some attention on the subject, he cannot but feel that it is his duty to submit, as he now does with much diffidence, the result of his enquiries to the Public.

Whatever may be the merits or demerits of his observations, of this only is he certain, that they have been dictated by no selfish nor unworthy motives. Having neither the professional skill of an architect, an engineer, or a pilot to be jealous of, nor the interest of a lighterman, wharfinger, or merchant to promote, he relies on the candid consideration of persons of each of these descriptions; declaring with great sincerity, that, earnest, and even ardent, as he owns he is in every thing that relates to national improvement, he never should have presumed thus to step beyond his sphere, had he not been encouraged by the just remark of one well acquainted with the world, that there are few undertakings which the abilities of men far inferior to the original contrivers may not considerably improve \*.

He will be abundantly gratified should this humble Essay (which owes much of any little merit it may possess to a valuable Report of a Committee of the House of Commons) contribute in any degree to the encouragement of our Trade, the protection of the Revenue, the conveniency of Men of business, and the embellishment of the City; and to the adoption of a Plan worthy of the increasing opulence, extended commerce, and public spirit of the Capital of the British Empire.

\* Burke's Reflections on the Revolution in France. 250.

## A PLAN, &c.

To form a clear idea of the merits of any Plan for the Improvement of the Port of London, it seems material to consider—1. The Progress and Extent of its Commerce—2. The State of the Port—3. The Evils complained of—and, 4. The proper Remedy. Of each of the three first heads a succinct account will be submitted to the view of the Reader.

The Commerce of London is carried on by—Foreign Traders—Coasters—and River Craft.

The Foreign Trade has increased in the following progression since the commencement of the present century.

*Ships entered inwards at the Port of London<sup>1</sup>:*

Years.	British.		Foreign.		Total.	
	Ships.	Tons.	Ships.	Tons.	Ships.	Tons.
1702	839	80,040	496	76,995	1335	157,035
1751	1498	198,023	184	36,346	1682	234,369
1790	2254	431,890	1161	149,205	3415	581,095
1791	2184	419,374	1236	149,053	3420	568,427
1792	2489	451,188	1186	152,243	3675	603,431
1793	2348	478,105	1193	177,019	3541	655,124
1794	2219	429,715	1444	191,130	3663	620,845
1795	1841	389,317	991	189,136	2832	578,453
1796	2007	436,843	2169	287,142	4176	723,985
1797	1426	330,392	1843	226,856	3269	557,248

<sup>1</sup> R. from the Committee appointed to enquire into the best mode of providing sufficient accommodation for the increased Trade and Shipping of the Port of London, 1796. App. G. The accounts of the years 1796 and 1797 were obligingly furnished by the Inspector General of the Customs.

The increase of Exports and Imports will appear from the following detail :

Statement of Exports and Imports from and into the Port of London, for every tenth year, from the year 1700 to the year 1790 ; and for the years 1791, 1792, 1793, 1794, 1795<sup>1</sup>, 1796, 1797<sup>2</sup>.

Years.	Value of Imports.	Value of Exports.
1700	£. 4,875,538 13 11	£. 5,387,787 4 4
1710	2,894,737 7 6	4,622,370 12 2
1720	4,958,101 17 5	5,008,245 17 2
1730	6,224,882 8 7	6,344,765 10 2
1740	4,904,248 11 1	5,593,734 3 4
1750	5,540,564 4 8	8,415,218 2 5
1760	7,063,395 13 6	10,726,709 0 10
1770	8,889,868 0 9	9,267,709 0 10
1780	6,794,021 0 1	6,837,960 4 9
1790	12,275,546 14 6	10,716,548 14 1
1791	12,016,229 5 2	12,944,192 8 10
1792	12,071,674 8 9	14,742,516 13 4
1793	12,224,745 7 4	12,660,463 6 11
1794	14,863,238 8 11	16,578,802 10 10
1795	15,384,777 14 5	16,520,848 9 2
1796	14,719,466 15 7	18,410,499 17 9
1797	12,488,174 0 4	17,910,674 13 8

\* R. App. D.

<sup>2</sup> The Imports in 1795, and the Imports and Exports in 1796 and 1797, were supplied by the Inspector General.

The Coasting Trade may be divided into—  
Coasters—and Colliers.

The following Table exhibits the Number and Tonnage of Ships and Vessels which entered the Port of London, coastwise, in the years 1700, &c<sup>1</sup>.

Years.	Ships.	Tonnage.
1700	5,562	278,100
1750	6,396	511,680
1790	9,278	927,800
1791	9,398	939,800
1792	9,827	982,700
1793	9,641	964,100
1794	10,286	1,028,600
1795	11,964	1,196,400
1796	11,176	1,059,915
1797	10,175	1,205,650

Of the above, the number of Colliers using the Port of London appears from official returns to be 431. Their tonnage is 79,680 tons, which is, on the average, 185 tons to each ship. As many, however, are stated to be of 300 tons and upwards, some of the remainder must be very small. There are 3871 entries annually, as each Collier, on the average, makes nine voyages in the year; the aggregate tonnage, including repeated voyages, amounts to 717,120 tons<sup>2</sup>. The Coal-trade, there-

<sup>1</sup> R. App. H. The two last years from the Inspector General.

<sup>2</sup> R. App. Qq.

fore, exceeds the Foreign Trade both in number of ships and in tonnage<sup>1</sup>.

Deducting Colliers, the remainder of the Coal-ing Trade may be estimated at about 7,500 sail : they are double in number, but not equal in tonnage to the Foreign Trade<sup>2</sup>.

The importation of coals, on the average of seven years preceding 1732, was 474,717 chaldrons : it now amounts to about 900,000 chaldrons annually, valued at £. 1,800,000<sup>3</sup>. The average monthly supply of coals, necessary for London, is 66,000 chaldrons ; or 300 cargoes of 220 chaldrons each, which will ordinarily require 300 colliers<sup>4</sup>.

The mere increase in the number of vessels frequenting the Port, is not the only criterion to shew what accommodation they require. The increased dimensions of the shipping, and their consequent want of a greater draught of water, also require consideration.

The average tonnage of ships frequenting the Port of London has gradually increased during the present century :

	Tons.
In 1702 the average tonnage of foreign ships was	96 to each.
1751	132
1794	194
1750 of coasters	80
1795	101 <sup>5</sup>

<sup>1</sup> R. 202. <sup>2</sup> R. 202. <sup>3</sup> R. 202. <sup>4</sup> R. ix. 164.

<sup>5</sup> R. v. vi. App. G. App. H.

The following Statement exhibits the comparative Tonnage of the Shipping belonging to the Port of London in 1732 and 1792<sup>1</sup>:

Number of Ships.	1732	1792	Decreas.	Increased.
Of and under 200 tons —	1212	1109	103	—
300	83	368	—	285
400	74	236	—	162
500	46	30	16	—
600	—	15	—	15
700	—	7	—	7
1300	2	95	—	93
	<hr/> 1417	<hr/> 1860	<hr/> 119	<hr/> 562
		<hr/> 1417		<hr/> 119
	Increase 443		Increase 443	

The aggregate number of Craft, (exclusive of ships' boats, wherries, and pleasure-boats,) in active service in the Port of London, was stated by a Return of the Admiralty-office, in April 1796, to be as follows<sup>2</sup>:

No. of Vessels.	Of what Description.	Amount of Tonnage.	Tons each.
2596	Barges <sup>3</sup>	85,103	33
402	Lighters	15,454	39
338	Punts	6,810	20
57	Boats	1,332	24
6	Sloops	161	27
10	Cutters	711	71
10	Hoys	585	58
<hr/> 3419		<hr/> 110,156	

<sup>1</sup> R. 205.

<sup>2</sup> R. App. Ss.

<sup>3</sup> Of these, about 400 Craft are employed in the Deal, and the remainder in the Coal Trade. R. x.

In investigating the present circumstances of the Port of London, it is also necessary to consider not only the state of the Thames with reference to the passage and stations which it affords to the shipping, but likewise the legal quays, and the other accommodations which various parts of this great commercial city present for the reception and delivery of cargoes.

The Port of London, as actually occupied by shipping, extends from London Bridge to Deptford. It is near four miles in length, and from 400 to 500 yards in breadth. It may be divided into four parts; namely, the Upper, Middle, and Lower Pool, and the space between Limehouse and Deptford. The Upper Pool extends from London Bridge to Union Hole, about 1600 yards; the Middle Pool from thence to Wapping New Stairs, 700 yards; the Lower Pool from thence to Horse-ferry-tier, near Limehouse, 1800 yards. The space from thence to the King's Mooring Chains at Deptford is about 2700 yards, or one mile and an half.

The number of ships in the Pool (exclusive of coasters) at mooring chains and at their own anchors, afloat, frequently amounts to 775, viz.

In Upper Pool, small vessels and coasters,	-	329
Middle Pool, middle-sized ships,	-	126
Lower Pool, large ships,	-	320
	<hr/>	
At Limehouse, large ships,	-	775
At Deptford	-	54
	<hr/>	
Total,		879 <sup>z</sup>

Mr. Nicholls, a pilot of the Trinity-House, states the tiers to be too close; and proposes that only 242 small, 119 middling, and 184 large ships, (total 545,) should be allowed to anchor in the Pool<sup>a</sup>.

Including Coasters, the whole number in the Port of London, usually, varies from 1000 to 1400<sup>b</sup>. Mr. Jeffop the engineer found, from taking the average width of the River at high water, and the length from London Bridge to Poplar-Gut, that when there are 1400 ships in the River, which is the greatest number, there are then about four ships and a quarter to an acre<sup>c</sup>; but as the surface of the River is much diminished at low-water, the number which it can then conveniently accommodate must be considerably less. Mr. Browne, surveyor to the Customs, supposes that from 17 to 1800 vessels from 50 to 400 tons could

<sup>a</sup> R. App. E.    <sup>b</sup> R. App. F.    <sup>c</sup> R. 111.    <sup>d</sup> R. 179.

lie afloat above Limehouse, provided they were properly moored<sup>1.</sup>

All vessels, of whatever burthen, would come up to the Pool, if there were room and depth of water<sup>2.</sup> They are prevented only by the want of accommodation from discharging their cargoes on the quays.

The surface of the River is not only occupied by shipping: the space taken up by the craft necessary to unload the ships, and in some instances by their cargoes, is very considerable. Ninety colliers are often unlading at a time. They require each from twelve to sixteen lighters. Taking the least number, the craft thus employed amount to 1080<sup>3.</sup> Of 424 timber and deal ships, (the usual number which enter London in the course of the year,) 250 are laden with timbers, which, when discharged and afloat, cover a surface of water eleven or twelve times greater than what is taken up by the ship itself; and in this situation often remain for admeasurement by the proper revenue officers from three to seven days, and, when measured, remain a further time for convenience of sale by the merchant, who in general is desirous of selling them while alongside the ship<sup>4.</sup>

The land accommodation in the Port of London, for the reception and delivery of cargoes, consists of legal quays and sufferance wharfs.

<sup>1</sup> R. 33.

<sup>2</sup> R. 42.

<sup>3</sup> R. 165.

<sup>4</sup> R. 192.

The legal quays are situated on the north side of the River, and extend (with some interruptions) from London Bridge to the western extremity of the Tower Ditch. They are appropriated to the landing and examination of teas, sugar, rum, cotton, linens, tobacco, wines, brandies, oils, silks, furs, and other high-duty commodities. All bounty and certificate goods (such as linens, wines, brandies, rum, tobacco, &c.) and free goods, are likewise shipped from the legal quays for exportation. The frontage of these quays is only 1464 feet ; of which, 300 feet are appropriated to Coasters, and the remainder (1164 feet) to the Foreign Trade<sup>1</sup>. It was probably with a view to the revenue that the legal quays were assigned and appointed by the Crown, under an act passed in the first year of Elizabeth<sup>2</sup>, for the exclusive landing of goods subject to duty. Their situation certainly is excellent ; but their extent is very insufficient for the increased commerce of the Port of London<sup>3</sup>. Bristol, whose trade is so inferior, is far better

<sup>1</sup> R. 70.

<sup>2</sup> i Eliz. c. 11.

<sup>3</sup> That our ancestors were convinced of the necessity of improving the Port, even in the confined state of our Trade in the middle of the last century, is evident from the following account in Mr. Lysons's Environs of London : " During Cromwell's usurpation, a project was set on foot by Sir Nicholas Crispe, of making a mole at Deptford for the harbour of 200 sail or more to ride in seventeen or eighteen feet of water, without cable or anchor.

better provided with quays ; she commands an extent of 4000 feet (or four-fifths of a mile) on the banks of the Avon and Frome, for the landing and delivery of goods <sup>1.</sup>

The legal quays have never been enlarged since their establishment in 1558. Sufferance wharfs, however, have from time to time been allotted for the accommodation of various branches of the Foreign Trade, but more particularly for the Coasting Trade ; and in 1793, owing to the great press of business, created by the arrival of large fleets in war time, sugars were allowed to be landed at suf-

" anchor. The demesne lands of the manor (being about 200  
 " acres, lying now within the parish of St. Paul,) were purchased  
 " for that purpose, at the price of 600*l.* and a considerable sum  
 " of money was expended in erecting store-houses and setting  
 " up a sluice. After the Restoration, Sir Nicholas Crispe, joining  
 " with the Duke of Ormond, the Earl of Bath, and others  
 " who were embarked with him in this undertaking, petitioned  
 " King Charles II. to grant them the land so purchased in fee-  
 " farm. It was stated in the petition, that Sir Nicholas Crispe  
 " had formed this project principally with a view of ingratiating  
 " himself with the then ruling powers, that he might the better  
 " watch a favourable opportunity of bringing about his Majes-  
 " ty's restoration. Sir Charles Harbord, the King's surveyor,  
 " to whom the petition was referred, advised his Majesty by no  
 " means to grant the land in fee-farm, but to offer a lease of  
 " thirty-one years, at a rent of 16*l.* per annum, with a fine of  
 " 2000*l.* These terms it is probable were not accepted, for it  
 " does not appear that the projectors proceeded any farther in  
 " their design." Vol. iv. p. 392.

<sup>1.</sup> A Treatise on Wet Docks, 1794. 1.

ferance wharfs<sup>1</sup>. Most of them, however, are at such a distance from the seat of commerce, and the warehouses on them for the most part so ill suited for adventitious business<sup>2</sup>, that the evils arising from the confined state of the legal quays can never be wholly remedied by the creation of additional quays, unless such new establishments offer the two-fold advantage of convenience to the merchant and security to the revenue.

The whole frontage of the sufferance wharfs, on both sides of the River, amounts to 3676 feet. Five of them, containing about 620 feet frontage, are situated on the north side of the River, between Hermitage Dock and the Tower. The remainder are on the south side of the River<sup>3</sup>.

The evils resulting from the present state of the Port are :

1. The want of room for uninterrupted navigation. At times the River is so filled up with shipping and craft, that a boat cannot pass. Ships often run foul of each other. They are often delayed, for several days together, from moving up from Deptford; and outward-bound vessels have, from like causes, been stopped at Shadwell Dock. Opportunities of winds at all times, and of convoys in times of war, have been lost from obstructions in the Pool.

2. The want of deep water for the accommo-

<sup>1</sup> R. 116.      <sup>2</sup> R. App. K k k.      <sup>3</sup> R. Plan of Sufferance Wharfs.

dation of large ships. In the present state of the River, ships of 300 tons cannot find sufficient water above Union and Wapping Old Stairs<sup>1</sup>; ships of 400 and 500 tons, which draw from fifteen to eighteen feet water, cannot safely come above Deptford; large East-Indiamen, many of which draw twenty-two and twenty-four feet water, are obliged to unload at Blackwall, which is six miles by water from the Company's warehouses. Owing to shallow water, vessels are frequently damaged or lost, from settling on their anchors in an ebb tide. Such accidents often happen after hard gales of wind<sup>2</sup>. Another evil resulting from the want of deep water, and the situation of the legal quays, is, that the large vessels in Foreign Trade cannot unload directly from the ship to the quay, but require that the cargo should be passed to the quay by lighters. Lighterage and re-delivery necessarily occasion an increase of charge in unloading and delivering a cargo.

It appears from evidence laid before the House of Commons, that the conservation of the depth of the River has not been regularly attended to. Shoals are not only formed by vessels that ground at low-water, but the offal and cleaning of dry docks contribute much to the choking up of the River. After hard showers the common sewers discharge into the Thames many thousand tons of soil<sup>3</sup>, of which

<sup>1</sup> R. 42.

<sup>2</sup> R. 42.

<sup>3</sup> After a hard shower near twenty tons of soil were passed from one sewer into a lighter that laid aground. R. 143.

the

the ballast-lighters take up but a small proportion : they resort only to the shoals which furnish sand or gravel, and neglect mud-banks, which are frequently collected, and are no less prejudicial to shipping<sup>1</sup>. In adverting to the powerful effect of these and other causes, many intelligent persons declare that the River has lost four or five feet in depth within the last ten or twelve years<sup>2</sup>.

This fact is by no means inconsistent with the tendency which all rivers have to form a channel proportionally deep to the volume they have to discharge ; for it may be doubted whether the depth of water at the tiers frequented by merchantmen ten or twelve years ago was the natural depth of the River. It appears to have been created by lighters who were employed in collecting ballast at the tiers, which West Indiamen frequented, during their absence. The lighters now generally work below Deptford<sup>3</sup>. Besides this, the soil passed into the river from an enlarged metropolis is probably much increased of late years<sup>4</sup>.

A large

<sup>1</sup> R. 143.      <sup>2</sup> R. 143.      <sup>3</sup> R. 143.

<sup>4</sup> I cannot omit the opportunity of observing, that a proper system of *paving* the metropolis is connected with the conservation of the Thames. The filth in the streets and the mud banks in the River principally originate in the immense quantities of sand and gravel which it is thought necessary to lay on every new street. It may be said, that gravel is necessary to work-in and bind the stones together : this end, however, would be fully answered by embedding the stones in mortar, as is done at Bath,

A large sewer operates in a certain degree like a rivulet, in forming banks at it's conflux with the River. The shoals which have thus been created may (and probably do) produce all the inconveniences of a decreased depth, though the general capacity of the channel may not have decreased.

3. The circuitous navigation round the Isle of Dogs. This passage is subject to shoals and eddies : changes of wind are required to facilitate navigation in the different reaches : many ships are detained below Blackwall, in consequence of this circuitous passage : several have been lost and damaged in the passage : scarcely a week occurs in which some are not driven on shore. One ship-owner states, that one of his ships, of 300 tons, was lost in coming round from Blackwall to Lime-

where the badness of the pavement is not owing to this system of paving, but to the softness of the materials. There are two other evils, which, as long as they exist, will prevent good pavement in London—*conical wheels* and *wooden water-pipes*. For the ill effects of the former in screwing up the streets on which they revolve, I refer the reader to an ingenious Treatise by Mr. Cussing ; and with respect to the latter, the daily obstructions in our streets are sufficient proofs of the nuisance of rotten aqueducts. The remedy is obvious—*cylindrical wheels* to carriages of every description, and *cast-iron water-pipes*. It would indeed be singular if the metropolis of Britain could not afford this convenience, when a small French colony (the island of Martinique) has procured iron pipes from Europe, for the express purpose of supplying the little town of Fort-Royal with water.

house,

house, and another of 400 tons so materially damaged that it nearly amounted to a total loss<sup>1</sup>.

4. An evil susceptible of more immediate remedy is the neglect of arrangement of vessels according to their size. Each ship takes the moorings she prefers, without regard to a free passage for others, or to the depth of water which she requires; so that it frequently happens, from small vessels taking deeper water than they want, that ships of greater tonnage are precluded from finding moorings, though there is water enough to accommodate them<sup>2</sup>. The appointment of harbour-masters would probably rectify this evil.

5. The necessity of intermediate navigation in lighters, for the discharge of foreign ships, whose tonnage is great, and whose cargoes are valuable and subject to high duties, not only occasions increased charges for the landing and delivery of goods, but produces more serious evils, which may be described under the general term of plunderage. It is much facilitated by the present insecure state of the quays, from whence the revenue is collected.

The author of the excellent Treatise on the Police of the Metropolis points out six stages of danger where goods are liable to be plundered<sup>3</sup>.

<sup>1</sup> R. 174, 5.

<sup>2</sup> R. 89.

<sup>3</sup> *Treatise on the Police of the Metropolis*, 4th edit. 62.

1. In the hold of the vessel, from the circumstance of the discharge taking place in the River.
2. In the transit from the ship to the wharfs in lighters.
3. In landing from the lighters upon the wharfs.
4. In lying exposed upon the wharfs or quays, waiting for the revenue officers.
5. In the transit from the wharfs to the warehouses.
6. In the stowing away in the warehouses.

—In all these stages numbers of delinquents are constantly upon the watch to avail themselves of every opportunity of carrying off booty. Many ingenious contrivances, adopted by persons employed in discharging ships, for secreting and conveying away valuable and even bulky commodities, are pointed out in the Report of the Committee of the House of Commons<sup>2</sup>.

The cargoes of West India ships are the chief objects of depredation. It is not unfrequent, while ships are lying in the River, for casks of Madeira wine to be smuggled on shore, even at noon-day. On rum more particularly the extent of plunder sometimes amounts to five and sometimes to seven puncheons in 120 out of one ship in one voyage<sup>3</sup>. On an average, each ship is supposed to be plundered

<sup>2</sup> R. 153. See also Treatise on the Police, &c. 61.

<sup>3</sup> R. 153.

of not less than ten hundred weight of sugar a day during the period of her discharge ; and it is estimated, that upon the annual average importation of West India produce, the merchants, ship-owners, and planters lose 150,000l.<sup>1</sup> and the revenue 50,000l. by pillage and plunder alone<sup>2</sup>.

The injury thus done to Trade appears to be moderately estimated at 500,000l. a year, or three-fourths per cent. on the total amount of property shipped and unshipped in the River Thames in the course of the year. This floating property is very fairly calculated by Mr. Colquhoun to amount to 70 millions<sup>3</sup>, viz.

<sup>1</sup> In the Report of a Committee of West India Planters, &c: respecting wet docks, (1797,) the loss on rum and sugar alone, resulting from frauds, abuses, and irregularities, between the time of the ships reporting and the final delivery of those articles out of the warehouse, is estimated, on a moderate computation, to amount to no less than from 150,000l. to 200,000l. *per annum*, p. 22. At the last Surrey Assizes, held at Kingston a few days ago, of sixty persons who were tried, six had been indicted for stealing raw sugar on the Surrey side of the River.

<sup>2</sup> Treatise on the Police, &c. 57. <sup>3</sup> Ibid. 55.

Value of goods imported into London in one year (ending Jan. 5. 1795)	L. 29,706,476 17 4
British merchant- dize exported	L. 11,396,539 13 8
Foreign merchant- dize exported	L. 14,308,915 14 6
	25,605,455 8 2
Value of goods im- ported in upwards of 9000 coasting vessels, averaged at 500l. each	4,500,000 0 0
Value of goods ex- ported coastways in about 7000 ves- sels, at 1000l. each	7,000,000 0 0
	11,500,000 0 0
Besides the numerous small inland cargoes of coals, merchandize, grain, malt, flour, and other articles laden and discharged in the Thames and the river Lea, and also the tackling, provisions, and stores of above 13,500 vessels (including their repeated voyages), all of which may be valued at	4,000,000 0 0
Total moving property liable to depreda- tion and plunder	L. 70,811,932 5 6

That this calculation is not over-strained appears from the evidence of the Inspector General of the Customs, who states, that an estimate was made of the value of foreign goods in the year 1696; and that such ancient estimate has invariably been adhered to down to the present time, in all

all official Reports from the department of the Inspector General of the Customs. In the course, however, of a century, prices must have been considerably enhanced; and Mr. Irving, calculating on the best information, states the value of imports and re-exports of foreign articles, at actual and current prices, exclusive of the duty, to be double that reported in the official document. Thus the average of exports of foreign articles from the Port of London, for three years preceding the present war, appears from the official Report, framed according to the ancient estimate, to have been about four millions, whereas the true and current value was at least eight millions: and the exports of foreign articles for three years, from 1793 to 1795 inclusive, which annually amounted to about six millions according to the ancient estimate, in reality averaged twelve millions sterling<sup>1</sup>.

Plunderage is much facilitated by ships grounding at low water: when vessels are in this situation, it is not uncommon for men and boys, known by the name of *mud-larks*, to prowl about on the shore, in order to receive small parcels of sugar, coffee, and other articles of plunder, which are thrown from the discharging ships when the tide will permit<sup>2</sup>.

Boats, also, are constantly hovering about discharging ships, upon pretence of carrying passen-

<sup>1</sup> R. iv. App. D.

<sup>2</sup> Treatise on the Police, &c. 58.

gers and baggage ; but the real object is to receive such goods as can be plundered and conveyed to them by their associates on board \*. River piracy, however, takes place principally in the night time ; and it is stated, upon credible authority, that instances have occurred in which a daring gang have actually weighed ships' anchors, and carried both them and their cables clear off \*. It might be expected, that, when goods were landed on the legal quays, the vigilance of the servants of the merchant, and the activity of the revenue-officers, would secure them from further depredation. Even here, however, improper persons are continually on the watch to pilfer whatever comes in their way ; and plunderage very frequently occurs, though perhaps not so frequently as in the transit of goods from the ship to the quay. It is a very serious grievance to the merchant, when the place allotted for the collection of duty is so confined and inconvenient, that his goods are inevitably subjected to plunderage. In this situation he not only loses his own property, but is precluded from recovering that portion of the revenue which he has advanced to government. A fundamental principle of judicious taxation is violated, when an ill-contrived mode of collecting a tax necessarily occasions a great deal more to be taken out of the pockets of the payer than it carries into the public

treasury, and exposes him to much unnecessary trouble and vexation : for, (to use Adam Smith's remark,) though " vexation is not, strictly speaking, expence, it is certainly equivalent to the expence at which every man would be willing to redeem himself from it ".

Another evil resulting from the necessity of intermediate navigation in lighters is the delay which must inevitably take place in unloading a vessel. It has, indeed, been stated to the Committee of the House of Commons, that it takes the same time to deliver a cargo into lighters as on a quay ; but, even admitting this fact, lighterage and re-delivery must be estimated as delay<sup>2</sup>. Many persons of experience, however, assert, that, with every possible improvement and regulation in the River, ships could not unload with the same dispatch as in docks<sup>3</sup>. The Surveyor of the Customs calculates eight days to be necessary for the delivery of a vessel of 350 tons in the summer, and a fortnight in the winter. The like delivery (he says) may be effected in docks in four days, in summer ; and in six, in winter ; being precisely half the time required in the tides-way<sup>4</sup>. Even in times of peace, it takes a month, on an average, to unload West India ships in the River<sup>5</sup>.

#### p. The legal quays, in their present confined

<sup>2</sup> Wealth of Nations, 8vo, 5th edit. iii. 258.

<sup>2</sup> R. 73.

<sup>3</sup> R. xxix.

<sup>4</sup> R. 49.

<sup>5</sup> R. 17.

state,

state, are not unreasonably objected to as a monopoly<sup>1</sup> injurious to trade, and an increase of the port-charges. It is asserted, that wharfingers, having a joint right in quays and wharfs, will sometimes not permit goods to be landed on their quays unless they are likewise warehoused<sup>2</sup>; and that, with the expectation of quick sales, they sometimes undertake more than they can find accommodation for: the consequence of which is, that goods run a great risque from lying in the craft a considerable time before they can be landed<sup>3</sup>.

The Committee of the House of Commons, in examining the various Plans submitted to them for the improvement of the Port of London, remark, that their value and propriety is referable to the following general considerations of mercantile accommodation and public advantage:

To practicability and to expence;

To the time necessary for completion, and progressive utility until completed;

<sup>1</sup> Many persons considered them in this light as long ago as the reign of Charles the First. See Lord Clarendon's Life, 1 vol. p. 22. This eminent Statesman informs us, that it was in consequence of his being actively employed in settling a dispute concerning them that he first became known as a Lawyer, and obtained those recommendations to Archbishop Laud, and other great men, which paved the way to his subsequent advancement.

- To the accommodation and arrangement of ships and trades at their moorings and stations;
- To the facilitating navigation into port and outwards;
- To the speedy landing and delivery of cargoes;
- To the security of cargoes from plunderage, and from smuggling;
- To the expediting both imports and exports with safety to the revenue;
- To the obviating circumstances of new dangers to shipping from fire, stranding, or other accidents;
- To just regard in avoiding unnecessary trespass on local concerns, or private interests.

Of the eight different Plans laid before the Committee, the Plan of the Corporation of the city of London and the Merchants' Plan appear have attracted the most attention.

The City Plan (as published in the Report of the Committee of the House of Commons) promises to excavate a dock of 102 acres in the isthmus of the Isle of Dogs, capable, at four ships to an acre, of containing above 400 ships: the dock intended to stretch from the reach at Limehouse to that near Perry's dock, and to have a commu-

nication at each termination with the River. It is to be appropriated to unladen vessels of all descriptions, ships for sale, and to timber ships and their rafts. The Plan further proposes, for the accommodation of Colliers, to create another dock of 102 acres at Rotherhithe, with half-tide docks and openings into the Thames : and also a canal leading from thence to Vauxhall, which will enable the craft to work at times when the tide will not serve. For the further accommodation of the Foreign Trade, the City Plan has in view the extension of the frontage of the present legal quays for lighters to lie along-side, by making five indented quays in the present area, (extended by the accession of Billingsgate,) capable each of receiving 29 lighters, exclusive of 44 which may lie to be discharged at the front of the quays ; and embanking the whole on an average projection of 97 feet, the greatest projection into the River being 150 feet, and affording a space of quay-room, which, in comparison with the present, will be as 4150 feet in length, and 60 feet in depth, are to the present space, 1464 feet in length, and 50 feet in depth. It is also a part of this Plan to arch over the quays ; and to construct spacious warehouses

The whole number of lighters which may be thus accommodated will therefore be,

In the docks,	•	•	•	•	145
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In front of quays	•	•	•	•	44
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Total,	—	189
--------	---	-----

upon them; and to open avenues from Thames-street to the adjoining parts of the City<sup>1</sup>.

According to the Merchants' Plan<sup>2</sup> it is proposed to purchase 80 acres in Wapping, lying between Nightingale-lane to the East, Ratcliffe-highway to the North, New Gravel-lane to the West, and Wapping-street to the South; and there to excavate and form two docks of 30 acres, capable, at ~~rise~~<sup>10.8333</sup> ships to an acre, of containing 350 ships; and another dock, of about two acres, for the accommodation of lighters, with a channel from the main dock into the River at Hermitage-dock. Two entrances are intended for shipping, each capable of admitting about 30 ships at every flood tide: the one communicating directly with the Thames at Bell-dock; the other by a canal, (navigable for ships of 550 tons,) running Eastward two miles and three-quarters, and communicating with the River at Blackwall, between Perry's dock and the River Lea. This canal is meant to be 170 feet wide at the surface, 70 feet at bottom,

<sup>1</sup> R. xxxiv.

<sup>2</sup> Another Plan has lately been brought forward by a Committee of Merchants, for forming wet docks in the Isle of Dogs, capable of containing 200 loaded ships, for the accommodation of the West India Trade, with warehouses adjoining sufficiently extensive to hold 46,000 hogsheads of sugar, 16,000 puncheons of rum, 35,000 hogsheads of coffee, and all other West India produce usually put into warehouses. The expence is estimated at 460,000*l.*

and both docks and canal are to have 22 feet depth of water. The canal, exclusive of the docks, will, in its course, cover 40 acres of ground. The remainder of the area at Wapping is designed for quays, wharfs, and warehouses, and is to be surrounded and secured by a high wall<sup>1</sup>.

Both these Plans<sup>2</sup> appear to be equally practica-

<sup>1</sup> R. xxxii.

<sup>2</sup> Of the six other Plans mentioned in the Report, Mr. Wyatt's Plan recommends the formation of three docks at Blackwall, with entrance basins, &c. capable of receiving about 800 ships, and that the dues should be ascertained by the revenue officer at these docks. The Southwark Plan proposes docks at Rotherhithe, communicating with the Thames near Greenland Dock, and to the west having an outlet by a canal opening into the Thames above London Bridge, nearly opposite to St. Paul's. Mr. Spence proposes an arrangement and division of trades and shipping into twelve several classes, and that each class should have a separate dock. Mr. Walker proposes docks in Wapping, with entrances at Hermitage Dock and at Pelican Stairs, and a canal similar to that of the Merchants, but taking lower ground, and entering the River to the southward of Perry's Dock. See Plate 1st. Mr. Ogle proposes to widen the legal quays by a projection into the River of thirty feet; to enlarge the avenues communicating with the quays; to deepen the River six feet; to appoint harbour-masters for superintending and stationing ships according to their sizes and trades; and to form a ballast wharf opposite the King's Yard at Deptford. Mr. Revely proposes to form a new channel for the River, taking it's course from Wapping to the old channel of the Thames, between Greenland Dock and Deptford; and thence inclining gently to the northward till it falls into Woolwich Reach, leaving two spacious docks to the northward, by shutting out the Ratcliffe and Blackwall bends of the River.

ble ; nor is there a very considerable difference between them in point of expence<sup>1</sup>. For the accommodation and arrangement of ships at their moorings, the space provided by the City Plan is far more considerable than that allotted by the Merchants : the former appears also to be the best calculated for facilitating the navigation in and out ; since the dock, which they propose to excavate at the Isle of Dogs, would not only supersede the necessity of the circuitous passage round the Isle, but admit more ships than can be accommodated in the Wapping docks : the depth of water, however, in neither would permit very large ships to enter : the City docks at Rotherhithe would also, probably, much assist the navigation ; though, perhaps, their intended projection at the legal quays might be detrimental to the River<sup>2</sup>. In speedy landing and delivery from ships, the Merchants' Plan, from the contiguity of their docks to the metropolis, appears to have a decided advantage : the City Plan does not provide adequate security from plunderage and smuggling ; the docks in the Isle of Dogs would, from their distance, be not only inconvenient both to the Merchant and the Revenue-officer, but the long and expensive lighterage which they would neces-

* R. 18. The estimate of expence for the City Plan is	L. 1,109,352
Merchants' Plan	993,132

<sup>1</sup> See dotted line in the River, in Plate 3d.

farily

sarily require would be equally injurious to the Revenue and to Property. With reference to plunderage, there are strong objections to the Merchants' Plan : there will be but little time, in winter, for ships to pass along their canal, unless they sometimes pass in the night ; and articles, it is stated, may be easily conveyed on shore, whether the ships are stationary or moving along the canal ; but smuggling may be carried on with great facility in the dark<sup>1</sup>. The enlargement of the legal quays, as proposed by the City Plan, would certainly much expedite the imports and exports ; but it is probable that much delay would be caused by the remote situation of their docks at the Isle of Dogs : there is, however, reason to think, that exports and imports would be expedited with complete safety to the Revenue, in a dock contiguous to the seat of business, and sufficiently capacious to accommodate the Foreign Trade<sup>2</sup>. There is a great diversity of opinion, whether ships would be safer from fire in Docks than in the River : some persons of experience think, that vessels exposed to fire may be more readily shifted in still water than in the tides-way : others, however, assert, that the tide would assist in the removal of ships, which, in case of fire in the River, would be cut adrift<sup>3</sup>. The relative danger, however, must depend on the crowded state of the

<sup>1</sup> R. 36. 68.

<sup>2</sup> R. xxviii. and xxix.

<sup>3</sup> R. xxx.

River ;

River ; and if the tiers are close or numerous, it is not easy to conceive how the ships could be extricated, or to what distance the conflagration might extend. In a flood-tide no benefit could be derived from cutting a-drift any ship that was on fire <sup>1</sup> above Limehouse : she would carry devastation along with her into a crowded pool. Docks admit of more precautionary measures against fire than Rivers can possibly do. Mr. Rennie, the engineer, suggests, that a considerable expence would be saved if the cranes for unloading ships were worked by steam engines, which might occasionally be applied for extinguishing fire <sup>2</sup> : floating engines might also be used in docks ; and the precaution of scuttling ships on fire might perhaps be sometimes adopted with success. With regard to general accidents, ships in docks appear to be exposed to less danger than when anchored or moored in a tide-way. From drifts of ice, which frequently do so much damage in the River <sup>3</sup>, they can experience no injury. Docks, indeed, freeze sooner than a river ; but precautionary measures may be taken to keep them open in ordinary winters, when the Thames is not frozen over. The navigation, however, of the Merchants' Canal would probably be much impeded by ice, even in ordinary frosts, when the River was not frozen over <sup>4</sup>. It is stated as an additional objection to

<sup>1</sup> R. 123.    <sup>2</sup> R. 29.    <sup>3</sup> R. App. N.    <sup>4</sup> R. 37. 39.

their Plan, that it would much injure private property, particularly Shadwell Water-works, which now receive a net income of 4000 l. a-year, part of which, if 1800 houses were taken down to form the Wapping Docks, would necessarily cease<sup>1</sup>. It is also said, that, as the Docks would be out of the City's jurisdiction, the City Carmen, who are privileged to work for hire within its limits, and whose licences are transferable as secure property, would be materially injured; that an income of 400 l. a-year, derived by Christ's Hospital from licensed carts, would be proportionably affected<sup>2</sup>; that the Porters, who are under the government of the City, and who have always found employment on the legal quays, would suffer by the Export and Import business being removed out of the limits of the City<sup>3</sup>; that half of the Watermen's Company (consisting of 12,000 men) would be deprived of their means of subsistence, which arises from business among the shipping below Bridge, if the Foreign Trade were removed into docks<sup>4</sup>. The proprietors of the legal quays state, that if only the West India trade were taken into docks, the loss that would result to them would amount to two-thirds of the value of their property<sup>5</sup>.

In all these objections there is some weight; though it must be readily admitted that there is

<sup>1</sup> R. 26. 63.

<sup>2</sup> R. 126.

<sup>3</sup> R. 125.

<sup>4</sup> R. 239.

<sup>5</sup> R. 210.

more

more in some than in others. The amount of them all, however, is considerable ; and sufficient to make those whose business it is to forward the improvement of the Port of London, to pause, and well to weigh all the consequences of either of these Plans being either wholly adopted or rejected.

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With a view to provide a remedy for the evils which are at present complained of, as well as to guard effectually against such new ones as are too justly to be apprehended from any of the Plans which have yet been submitted to public consideration, I beg leave, if it be not now too late, to offer one Plan more ; which, I am willing to flat-ter myself, will, on investigation, be found to possess the following important advantages.

It will not violate any of the corporate rights of the City of London ; but, on the contrary, will much enlarge the sphere of their authority, and probably much extend every branch of busi-ness connected with commerce within the limits of the city.

It will enable the largest ships in the Foreign Trade to unload near the seat of business, without the intervention of long and expensive lighterage, and without subjecting them to the charge of towage along a Canal in order to reach the metropolis.

It will quadruple the frontage of the present

legal quays in such a manner as fully to accommodate the remainder both of the Foreign and Coasting Trade, and to afford both the Merchant and the Revenue ample protection from plunderage.

It will render the Pool fully adequate to any probable extension of Commerce, by removing a part of the Foreign Trade, (particularly timber ships,) and almost the whole of the Coal-trade to a situation more contiguous to the Timber-yards and the Coal-wharfs than the Pool itself; and this without the expence of digging a Dock.

It will improve the avenues of the Metropolis : it will open a new communication with the Counties of Hertford and Essex : it will facilitate the navigation of the River : it will lessen Port Charges \* : and if (notwithstanding the present dark cloud which now dims our horizon) Britons, by their own

\* Some idea may be formed of the comparative state of Port Charges at London and Liverpool from the following statement of charges on imports at those ports :

On a hogshead of sugar weighing 16 ewt.

Land Waiters.	Lighterage.	Wharfage.	Landing housing and weighing.	Cooperage.	Ware- house rent per week.	Cartage if removed.	Total charge.
London	d s. d	d.	s. d.	s. d.	s. d.	s. d.	s. d.
3 1 4	6	1 7	1 6	0 4	1 9	7 3	
Liverpool	8 0 0	—	0 8	1 0	0 3	0 9	3 4
					Difference —	3 11	

own united exertions and the blessing of Providence, may still preserve (as we fondly hope they for ever will) their freedom, and continue to be the greatest commercial people in the world; it will, in all human probability, not only add largely to individual and national wealth, but rapidly and materially increase the revenue.

For the attainment of objects of such vast importance, so much of the Plans laid before the House of Commons as are not liable to the objections which have just been stated, may be adopted and retained with great advantage.

The Committee notice the benefits which may be expected from a Dock, in economy of port charges, in the security of goods, in their quick certain and full payment of duty, in the dispatch and delivery of cargo, and in the intermediate

On a bag of Cotton weighing 3 cwt.	Hogshead of Coffee weighing 7 cwt.	Barrel of Ashes weighing 3 cwt.
s. d.	s. d.	s. d.
London 2 8	6 10	1 10 $\frac{1}{2}$
Liverpool 0 8 $\frac{1}{4}$	2 0	0 8 $\frac{1}{2}$
Difference 1 11 $\frac{1}{4}$	4 10	1 2

When the business is done at sufferance wharfs for want of room at the legal quays, the difference of charges is still more considerable, from extra fees paid to the revenue officers for their attendance there. The charges at Bristol and other Out-Ports are as moderate as at Liverpool; and the charges upon exports of every description are proportionably lower at all the Out-ports. R. App. O.

safety from fire and other accidents<sup>1</sup>. I propose, therefore, that a Dock should be excavated in Wapping<sup>2</sup>; where it would possess all those advantages which both the Merchants' and Mr. Walker's Plans justly ascribe to this situation. In order, however, to secure the City's jurisdiction over Carmen employed in the Dock, it might be adviseable to extend the North West corner of it across East Smithfield and through the Tobacco-warehouses, and a range of old ruinous buildings, to the South East corner of the Minories, which street is situated within the jurisdiction of the City. The Merchants' dock of 39 acres, with 350 ships, would be too crowded: the area in Wapping will admit 330 ships at six ships per acre<sup>3</sup>, and leave sufficient room for quays and warehouses. At eight to an acre, 440 may be received into the two docks, leaving sufficient room for shifting: 100 may unload upon the quays at the same time, and the remainder into lighters, if necessary<sup>4</sup>.

<sup>2</sup> R. xxv.

<sup>2</sup> See Plate 1st.

<sup>3</sup> In the Hull dock, which contains ten acres, 130 ships (or thirteen to the acre) have been lying at one time. Such a number however was much too great. R. 22. In the Liverpool docks the proportion of ships per acre is greater than what I propose.

<sup>4</sup> I have adopted the form and extent of docks recommended by

It will not be necessary to carry the whole of this plan into immediate execution. The North and South Dock will each contain 220 ships, and may be used independently of each other.

I next propose that the entrance from the River into this Dock should be, according to Mr. Walker's Plan, above Perry's dock at Blackwall; because (as that gentleman observes) the banks of the Canal, if it ran in the direction proposed by the Merchants' Plan, would be much endangered from their vicinity to the mouth of the River Lea, or else the Canal must be brought so near to Mr. Perry's docks as to endanger them. The mouth of this entrance would likewise be liable to be choaked up by the loose gravel and mud which is brought down by the River Lea. It is also inconvenient for anchorage, in case ships should be disappointed in getting into the Canal, as no ship that draws more than thirteen feet water can lie with safety at low water at that place: but the entrance proposed by Mr. Walker is near the deepest water and best anchorage in the River<sup>2</sup>.

by Mr. Walker. According to his Plan the area at Wapping, intended to be appropriated to docks, will be about 90 acres. Of this 55 acres will be occupied by the docks A and B (see Plate 1st). The remainder of the ground is designed for warehouses and spacious quays, and is meant to be surrounded by a high wall.

<sup>2</sup> App. Bb. See the soundings at low-water, marked in Plate 1st.

The objection to a Canal of still water, which would frequently be frozen in winter, is unanswerable. This evil, I apprehend, may be obviated by turning the water of the River Lea into the Canal<sup>2</sup>. A river will thus be obtained which will flow regularly from Blackwall to Wapping; and if at any time it should be thought expedient to convert it into a still-water Canal for the benefit of ships passing from London, this may be done, with great ease, by means of the gates placed on the Canal and the River Lea. The projected cut will thus unite the two-fold advantages of a River and a Canal; and, provided an entrance sufficiently deep can be obtained at Blackwall, there seems to be no reason why East India ships may not unload their cargoes within a quarter of a mile of the Company's warehouses. If it were determined, in the first instance, to make the Canal and Wapping Docks deep enough for such large ships, they would probably be repaired near the City, and Perry's dock would be rendered of little service: it might, therefore, in the first instance, be advisable to purchase it, and to convert it into an entrance basin for the Canal.

<sup>2</sup> Since writing this passage I have found that a very ancient precedent exists for diverting the course of the River Lea. Above nine hundred years ago King Alfred adopted this measure, though not with a view to commercial but to military purposes.

2. In order to provide the Coal and Timber Trade with a commodious station near the heart of the metropolis, I propose, that London-bridge should be taken down, and rebuilt about 200 yards above its present situation. The good Citizens of London will (I am persuaded) not deem me presumptuous in recommending the demolition of this venerable pile. With the highest respect for antiquity, (and no Member of the Society of Antiquaries, I trust, has more,) I cannot but think that the accommodation of the trade of this great metropolis is of more importance than the preservation of an ill-constructed bridge: the only advantage derived from it is, a communication by land between London and Southwark; against which may be stated—the great expence which from its injudicious construction it annually requires in repairs<sup>1</sup>—the injury which is done to the River by this artificial dam—the accidents which, owing to the rapidity of the stream, created by the contracted space between the piers, vessels frequently experience—the dangerous cata-  
racts resulting from the same cause, which have occasioned the loss of many (Mr. Pennant adds thousand<sup>2</sup>) lives—and the total exclusion of ship-

<sup>1</sup> At one time the current through the great arch had so undermined the sterlings, that above one thousand tons of stone were obliged to be thrown in to prevent the immediate ruin of the bridge. R. App. Aaa.

<sup>2</sup> Pennant's London, 1st edit. 296.

ping from a spacious river capable of receiving vessels of 200 tons burthen.

In its present state, the Bridge does not offer that accommodation to shipping which it did in ancient times : it was formerly furnished with a draw-bridge, which was not only of use in a military point of view, but served likewise for the admission of ships into the upper part of the River. A similar advantage may be obtained by erecting a new bridge of cast iron, with arches, sufficiently lofty to admit ships of 200 tons burthen. What the spirit of an individual accomplished at Sunderland, may surely be effected by the commercial enterprize and opulence of this great metropolis.

The erection of a new bridge will afford an opportunity of forming a grand street in a direct line from the widest part of the Borough to the Bank and Royal Exchange. The Borough near London-bridge and Fish-street-hill are, certainly, very mean entrances into a large city : the latter, more

\* A communication for shipping between the River above and below Blackfriars' Bridge, if it should be wanted, might be obtained by making a cut from the Albion Mills across Blackfriars' Road, and so into the River just above the bridge. Such a cut need not be more than 200 yards in length ; and the draw-bridge, which it would be necessary to lay across Blackfriars' Road, might be so constructed as to afford all the solidity and security of a firm pavement. Ships should only be allowed to pass through the Canal in the night tides.

particularly,

particularly, from its narrowness and steep ascent, is highly incommodious. The street from the New Bridge will be perfectly level to the Exchange.

The objections which may be made to the demolition of London Bridge are : that the City water-works would be destroyed ; that the upper navigation would be injured ; and that the expence of rebuilding the bridge would be great.

To the first objection I answer, that the City water-works may remain untouched ; or they may be removed to the new bridge, and placed in the open iron piers ; or, what appears to be a more eligible measure, a steam engine may be erected at the foot of Fish-street-hill for supplying London with water.

The possible danger which might result from permitting the River to resume its ancient course, may be obviated by precautionary measures ; the principal will be to employ lighters in removing the shoals and banks which London-bridge has created. The ballast thus procured from the River should be deposited on the North side, in order to form a quay or terrace from Scotland-yard to Dorset-street, near Blackfriars-bridge. Such a terrace will form a grander and more convenient communication between the South-west parts of Westminster and the City, than can ever be effected by enlarging the Strand.

I do not pretend to offer an estimate of the probable

bable cost of constructing a new bridge. It may however be observed, that the expence of building Blackfriars, where the River is 1024 feet wide, did not much exceed 150,000<sup>l.</sup><sup>1</sup> and that at the Old Swan Stairs (the proposed situation for the New Bridge) the width of the River is only 800 feet <sup>2</sup>; that some of the materials of the old bridge might be employed in forming the lower parts of the piers of the new one; and that the expence would be partly, if not wholly, compensated by a secure navigation for boats, by the acquisition of a spacious dock (of at least twenty acres) in the heart of the city, by an extension of the legal quays, and by a commodious and magnificent entrance into London.

Of the buildings which must necessarily be taken down, in order to form the new streets, part belongs to the Crown <sup>3</sup>, and part to public bodies. It is therefore to be hoped that a measure of great utility would not meet with a strong opposition from private interests.

3. I propose that the present legal quays, and the whole range of buildings which it may be ne-

<sup>1</sup> Pennant's London, 207.

<sup>2</sup> As however it is probable that great encroachments have been made on this part of the River, I propose to enlarge it's width at this place to about 900 feet. See Plate 2d.

<sup>3</sup> Namely the Post-office, through which the new street from the Bridge to the Royal Exchange is intended to pass. See Plate 2d. Merchant Taylors' school, in Suffolk Lane, belongs to a very opulent company.

cessary to convert into warehouses, be purchased by Government; and that new quays, extending from Tower-hill to Fish-street-hill, be constructed in the manner pointed out in the Plan annexed to this work <sup>1</sup>.

From this improvement (without the necessity of embanking to the extent proposed by the City Plan, and which is condemned by the Trinity House, as likely to prove injurious to the River<sup>2</sup>) will be obtained two Floating Docks for the reception of (at least) 125 lighters, besides a frontage towards the River capable of accommodating 84 lighters more. The number of lighters therefore which may unload at the quays at the same time will be 206, or seventeen more than what can be accommodated by the City Plan. The whole actual frontage thus obtained will be about 4500<sup>3</sup>, instead of 1464 feet, the extent of the present legal quays. Over the quays, on the margins of the docks, may be erected capacious warehouses, which will contain 16,000 square yards on their Plan<sup>4</sup>; whereas the warehouses on the present legal quays

<sup>1</sup> See Plate 3d.      <sup>2</sup> R. App. Ppp.

<sup>3</sup> Including the quays which may be obtained between the present and the new bridge, and about 3900 feet exclusive of those quays. 500 feet of additional quay may be gained by making an inlet on the west side of Tower-hill, as marked in Plate 3d.

<sup>4</sup> If necessary, about 4000 square yards of warehouse may be built on the quays adjoining Thames Street, and about 5000 square yards on the quay adjoining Tower-hill. See Plate 2d.

only

only cover 10,190 square yards. The warehouses, as proposed by the City Plan, would occupy 32,000 square yards <sup>2</sup>.

I likewise beg leave to recommend that the Custom-House should be rebuilt in the centre between Fish-street-hill and Tower-hill <sup>3</sup>. The situation will be highly central and commodious, both with respect to the business transacted on the quays, and the communications with the interior parts of the city.

In erecting the new warehouses every possible preservative against fire should be adopted <sup>3</sup>. They should likewise be not only secure, but be built (as all public buildings should be) of stone, and constructed, like the Custom-House at Dublin, upon

<sup>2</sup> Perhaps, if the proposed Plan were carried into execution, the proprietors of the Albion Mills might think it adviseable to convert them into warehouses.

<sup>3</sup> This is nearly the situation where the revenue was anciently collected. Before the establishment of the legal quays in the reign of Elizabeth, the principal place for receiving the duties was at Billingsgate. Pennant's London, 288.

<sup>3</sup> The reader will doubtless observe, that in the annexed Plan the proposed warehouses on the legal quays form four unconnected ranges of building. This may probably be some preservative against fire. Other expedients may be suggested by the professed architect. It is however difficult to say how a building, filled with combustible materials, may, consistently with the easy access required for commercial purposes, be rendered completely fire-proof. In the Plan of the City of London, the warehouses on the quays form one connected building.

an elegant plan. The fronts of the New Custom-house, the entrances in Thames-street, and the ends of the warehouses in Fish-street-hill, will admit of the purest kind of architectural decoration<sup>1</sup>.

Should it ever be thought proper to apply the Tower-ditch to the purposes of commerce, an easy communication may be made between the legal quays and the proposed dock in Wapping.

As Billingsgate will form a part of the new quays, a new fish-market must be provided. There will be ample space for it at the bottom of Fish-street-hill, and on that part of London-bridge which it may be thought proper to leave standing: or it may occupy part of the new quay between the old and the proposed bridge.

In order to give access to the multitude of carts which must necessarily pass to and from the legal quays, Thames-street and the neighbouring streets must be widened. As Fish-street-hill, however,

<sup>1</sup> It is often remarked by foreigners, that our public buildings are mean and insignificant, and that little attention is paid by us to architectural decoration. This complaint is not wholly unfounded, and is not (I conceive) undeserving the attention of those whose duty it is to direct the public taste. It never can be a matter of indifference to a nation that aims at civilization and refinement, whether her arsenals, palaces, temples, and other public edifices, are inelegant or splendid. When the expence is not disproportionate to the end, it cannot be wrong to combine magnificence with utility.

will be no longer wanted as an avenue to the Borough, it will partly answer this purpose; and the magnificent project of the City<sup>3</sup> for enlarging the avenues into Thames-street need not be wholly carried into execution. One of the advantages of my Plan will be, that St. Dunstan's-hill (no longer a hill) will present a spacious and level communication between the Custom-house and Tower-street; and to those (I trust there are many) to whom architectural beauty is not an object of indifference, it may be remarked, that Sir Christopher Wren's elegant spire will be seen to great advantage from the new Custom-house Quay and the River.

We must all regret that the Plans of that great Architect for the embellishment of the City were not carried into execution. It is, however, obvious, that they would have been chiefly confined to the Eastern end of the metropolis, as the great fire in 1666 did not extend beyond Fleet-street. The increased size of Westminster, and the great commercial intercourse which is daily carried on between it and the City, require that many streets in the West end of the town should be rendered more commodious than they are at present. On this subject I beg leave to offer a few (and only a few) hints, as a supplemental (and I think not unnecessary)

<sup>3</sup> R. App. Ec. (and the accompanying  
fary)

( 49 )  
part of a plan for the improvement of the  
Port of London:

The two grand avenues from the West end of the town are—Oxford-road, St. Giles, Holborn, and Snow-hill—and, the Strand and Fleet-street. The first may be improved at a moderate expence: the other, the Strand, cannot be rendered sufficiently capacious without pulling down almost one side of it. Notwithstanding the alterations carrying on near Temple-bar, a great part of the Strand will still remain exceedingly narrow; and with regard to the projected improvements at Snow-hill, I beg leave to remark, that widening it will not remedy half the inconveniences of that avenue. A deep ravine is a greater evil in the centre of a crowded city than a narrow street. I therefore propose to unite Holborn-hill with Newgate-street by means of a bridge. A plan of this nature has been successfully adopted in two great cities, Genoa and Edinburgh. An iron bridge over Fleet-market would perhaps be preferable to any other. It would occupy the least space, and might be constructed without pulling down any, or materially reducing the size of many, houses. To form the entrance, however, to this new street, or causeway, a few houses at the North-west corner of St. Andrew's Church-yard must be taken down.

Communications are wanted between the North and South parts of the metropolis. Two convenient avenues may be obtained by removing the

market from Fleet-market to the South side of Blackfriars<sup>1</sup>; and by widening St. Martin's-lane, and continuing it through the Seven Dials, and St. Giles (where the houses are old and ruinous,) to a new street which it may be adviseable to open in order to connect Oxford-street with Holborn.

Instead of enlarging the Strand, I have suggested the practicability of constructing a terrace from Middle Scotland-yard to Bridge-street, Blackfriars. This, I conceive, may be effected without destroying twenty houses, and a street of 100 feet may be obtained, facing the river, with ample space to construct a range of buildings, which may vie with the magnificent quays at Paris.

Some other, not unimportant, improvements in the City of Westminster are pointed out in the annexed Plan<sup>2</sup>.

Whatever Plan of extensive accommodation may be determined on, it is to be hoped that the opinion of a Committee of Merchants, which met in 1793 to consider this important subject, will be strictly attended to; and that "a principle of inviolate respect for property legally acquired, and of fair and adequate compensation in all instances where such property may be invaded," will be

<sup>1</sup> The area before Newgate would answer for a small market. A still larger might be obtained in many spots which are still unbuilt on between Blackfriars' Bridge and the Temple.

<sup>2</sup> See Plate 4th.

the basis on which the required extension will proceed<sup>1</sup>.

With respect to the mode of carrying this or any other Plan into execution, it might be expedient for Parliament to appoint Commissioners, (of whom the Corporation of London should form a considerable part,) with sufficient powers for effecting the projected improvements.

Of the probable expence, estimates may be readily formed; and, with regard to funds for defraying it, the following *Items* will shew that ample resources present themselves.

Dock dues on all vessels entering docks	
— is. 6d. per ton on all vessels which may	
be expected to enter annually, on 2000	
vessels of Foreign Traders, averaging 200	L.
tons each, will produce	30,000

As the remainder of the Foreign Trade	
will receive accommodation in the River,	
they may be fairly charged with a duty	
of 9d. per ton. On 2000 vessels this will	
probably produce about	15,000

The Coal Trade will be highly bene-	
fited by the improvements: Paying 2d.	
per chaldron, it will contribute annually	6,666

Carried over	L. 51,666
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<sup>1</sup> Report of Committee of West India Planters, 43.

Brought over £. 51,666

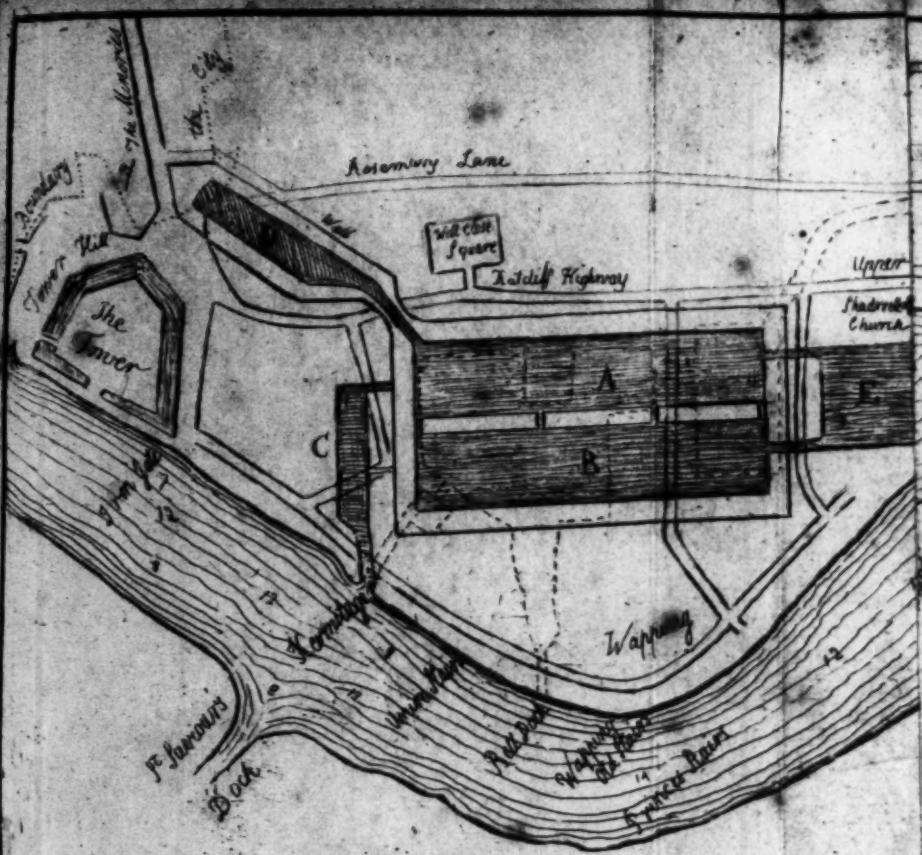
The Coasting Trade, for the same reasons, may be charged with a duty of 6d. per ton: This, on 400,000 tons, will amount to £10,000 Total annual duty £. 61,666

As the improvement will be of great public importance, it is to be hoped that the Legislature will not think public money ill bestowed in supporting them. If, for instance, there is a probable expectation, by a judicious improvement of the Port of London, not only of protecting the Merchants' property from depredation, but of reducing the expence of collecting, and of increasing the produce of the revenue to the annual amount of 50,000 l. a grant of 500,000 l. would (I humbly conceive) be a measure of the wisest policy and the soundest financial economy.

I will here conclude my remarks. I might easily have confirmed many of my proposals by other arguments and observations; but, studying plainness and brevity, I think it more respectful to the Public to leave what I have said to their candid and dispassionate consideration. However partial

<sup>1</sup> It may also not be thought unreasonable to subject River Crast, passing through the new bridge, to a moderate toll. The tax will be more than compensated by the safety which a new bridge will give to navigation.

I may



A & B Docks: each capable of containing 200 ships

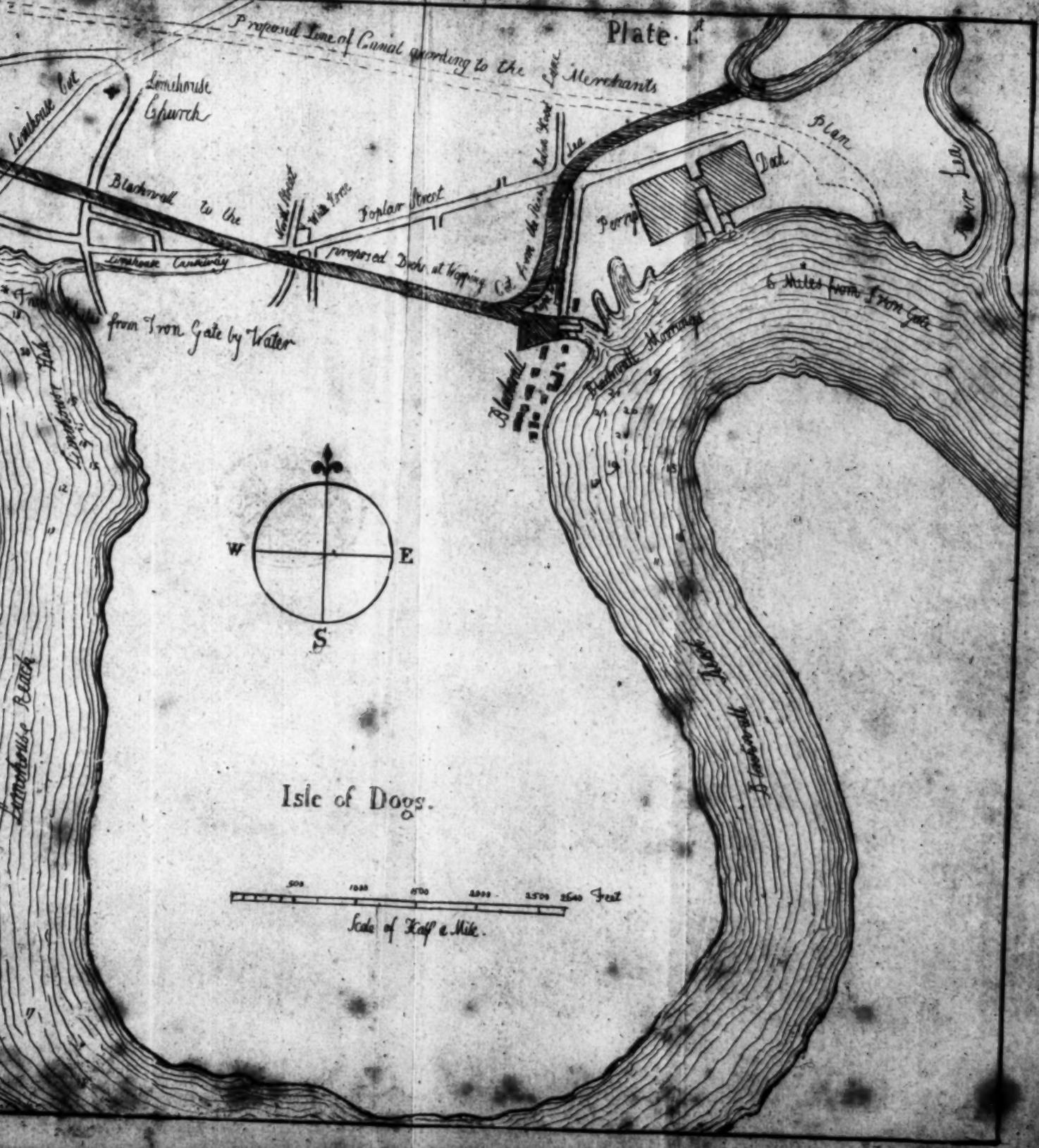
C - R Lighter Dock

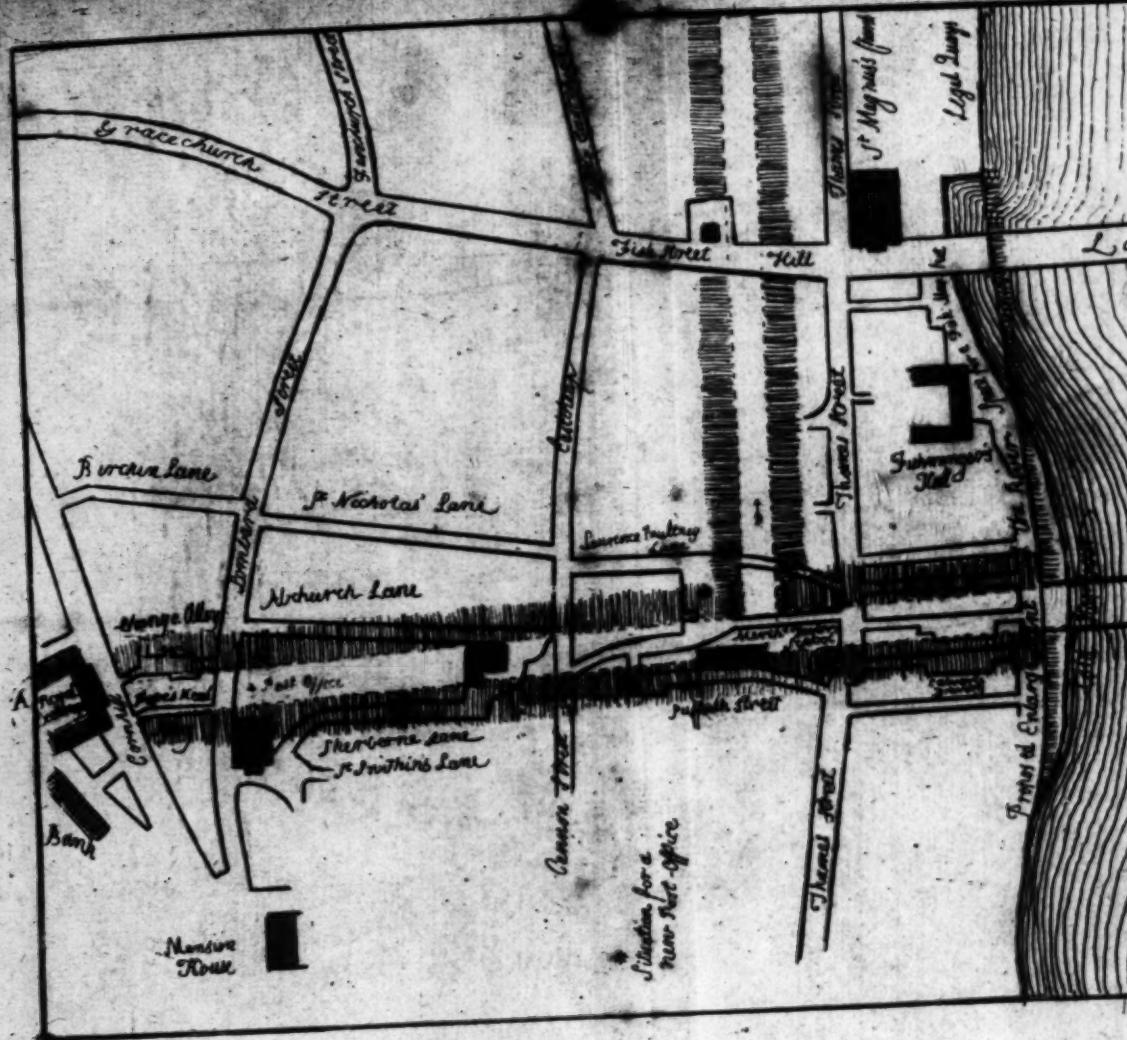
D Continuation of Docks through the Tobacco Warehouses  
to the Corner of the Minorcas, within the City jurisdiction

E Entering Dock for 60 Ships

The dotted lines in Wapping show the Merchants' Plan.



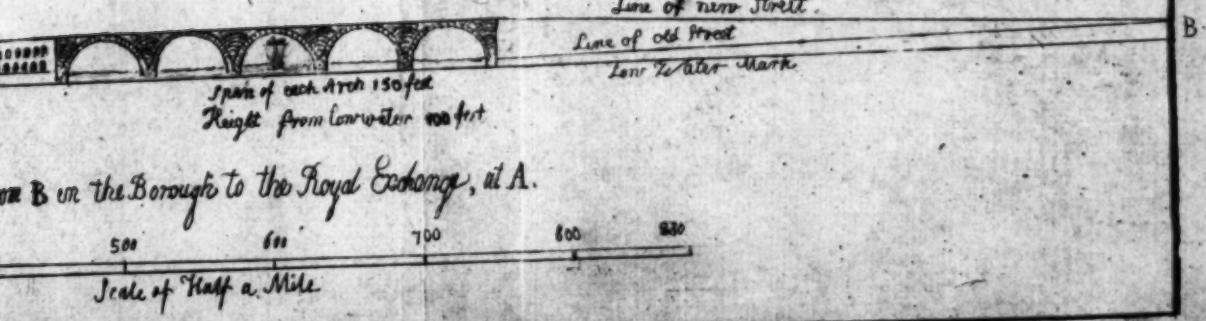
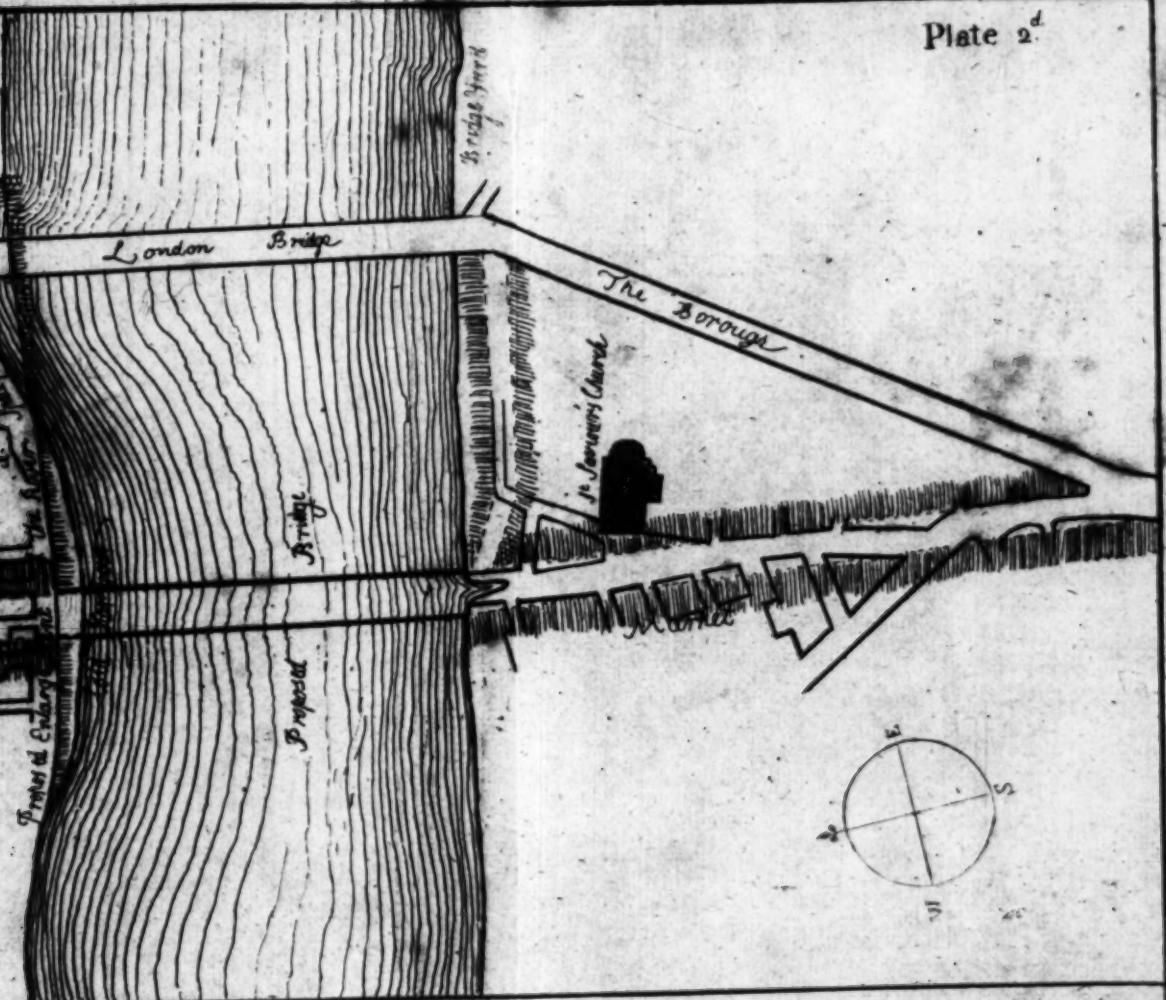


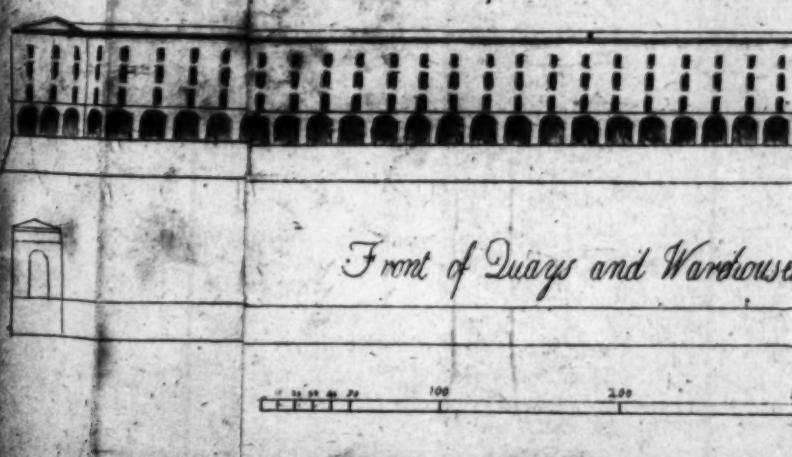
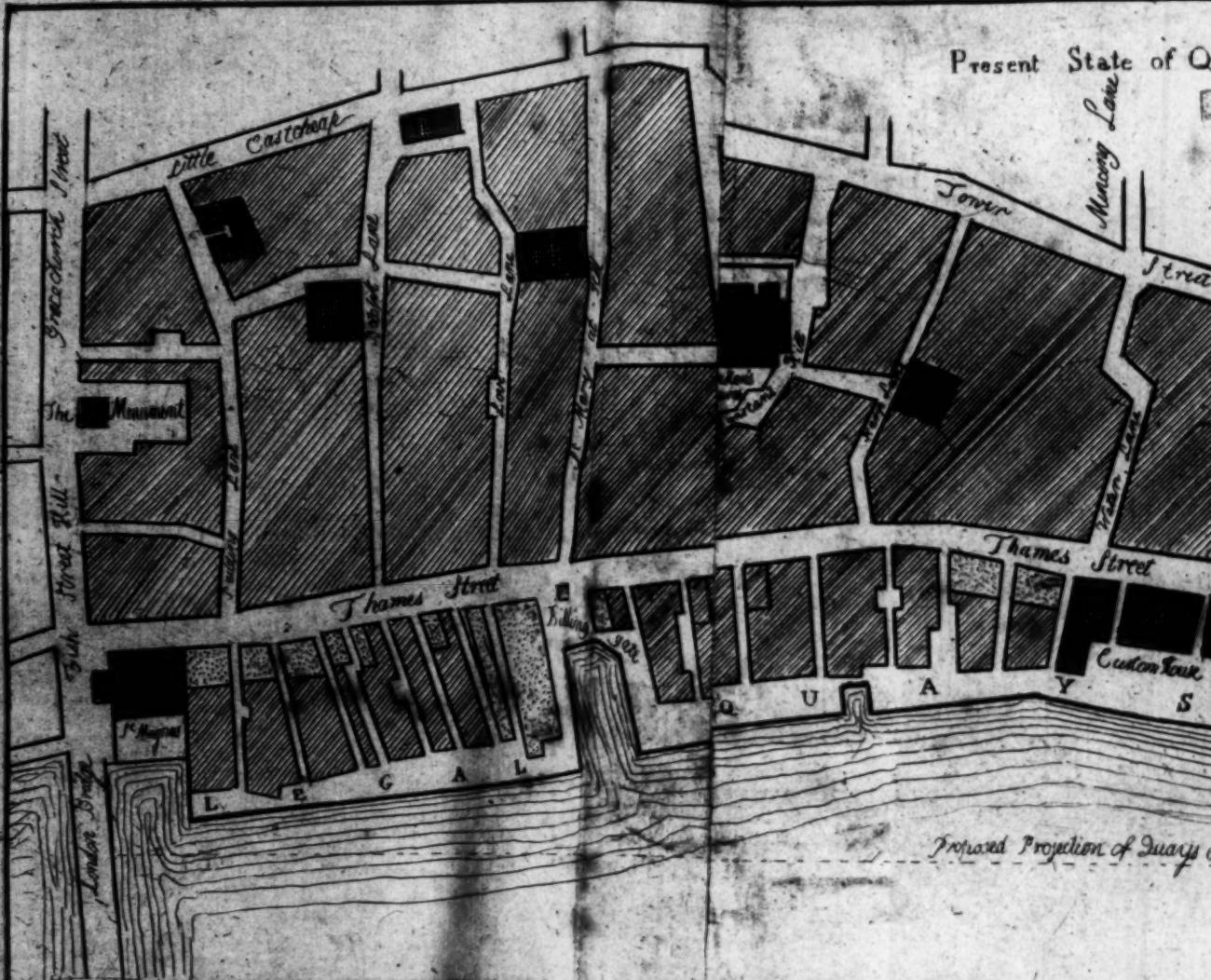


Profile of the proposed street from B on the

100 yards 200 300 400 500 feet

Plate 2<sup>d</sup>



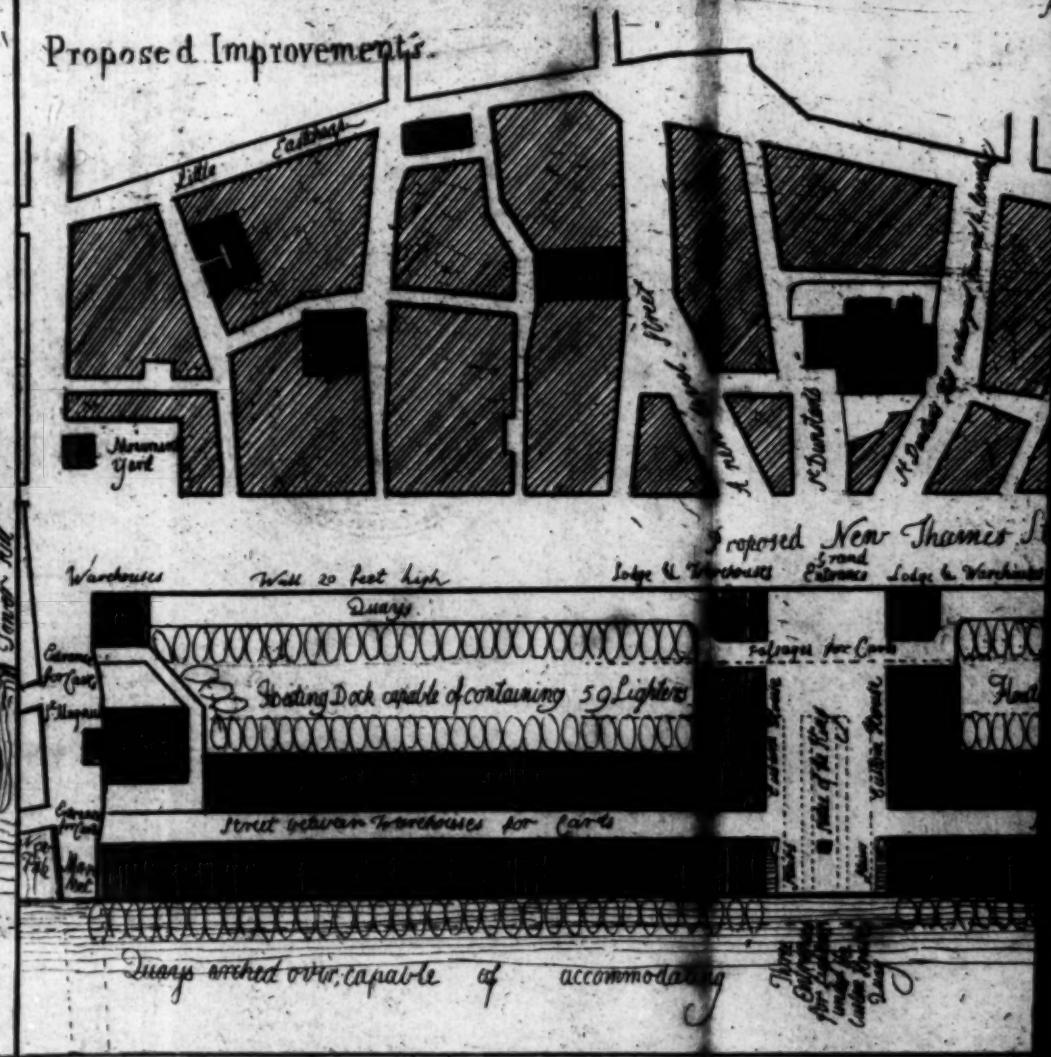


state of Quays.

[■] Not Warehouses.



### Proposed Improvements.



on of Quays according to the Merchant's Plan.

Front of Quays to  
wards the River

Hans. Entrances for Hans.  
Siegars.

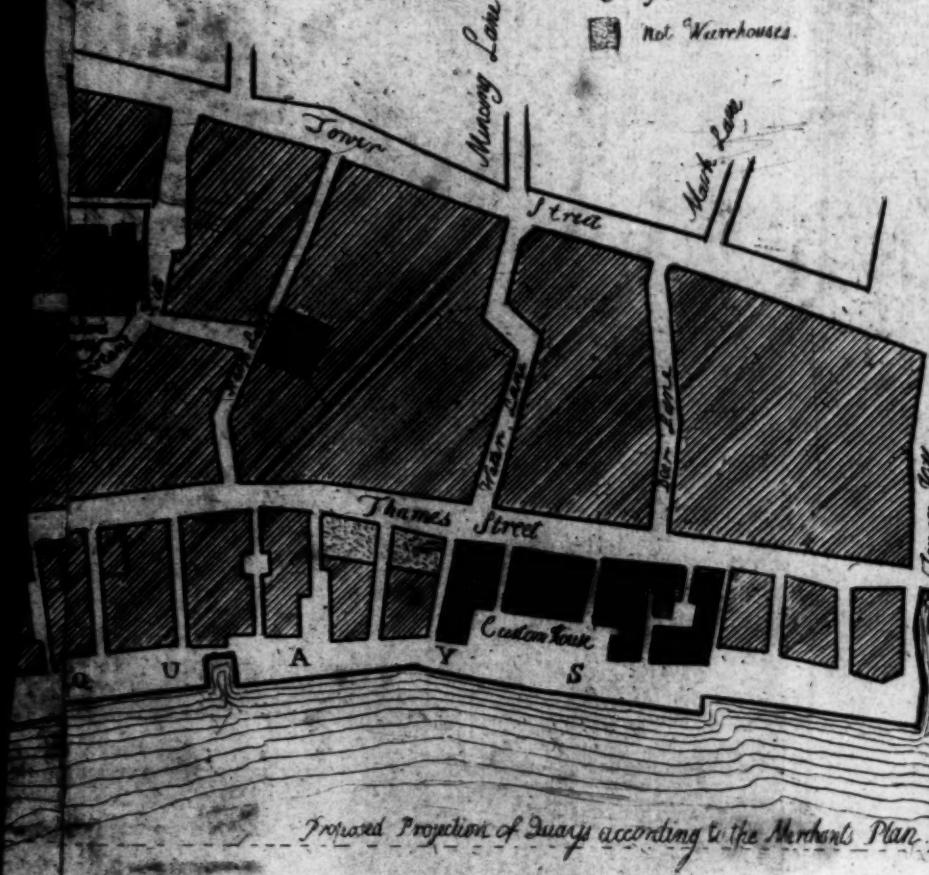
in New Thames Street.

Warehouses

300 400 500 600 700 800 900 1000

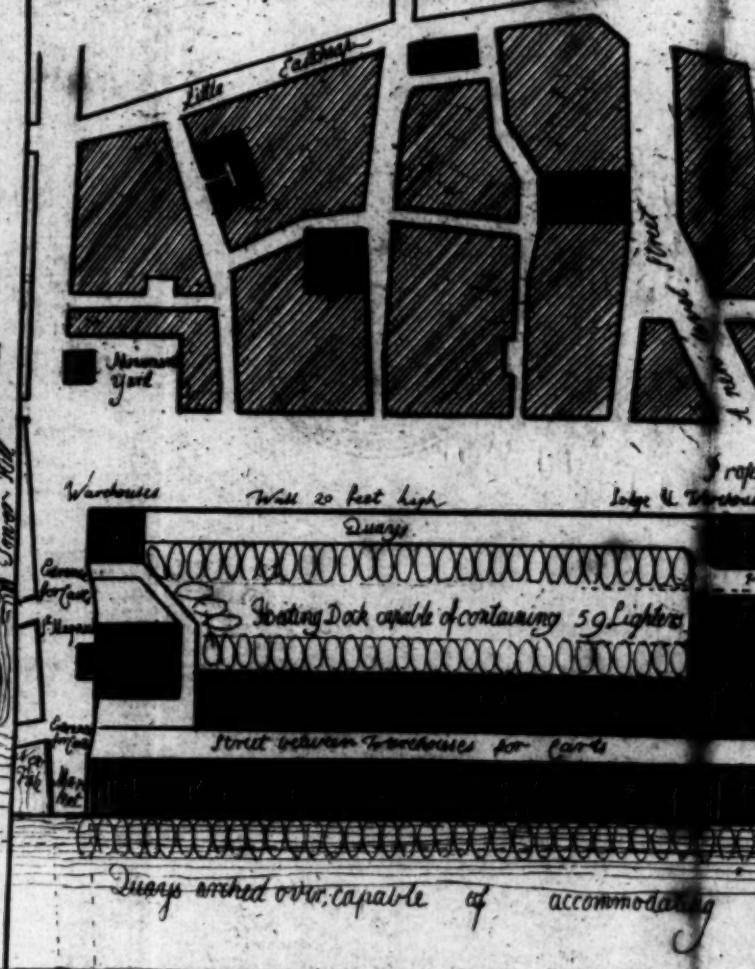
Scale of Feet.

## Present State of Quays.

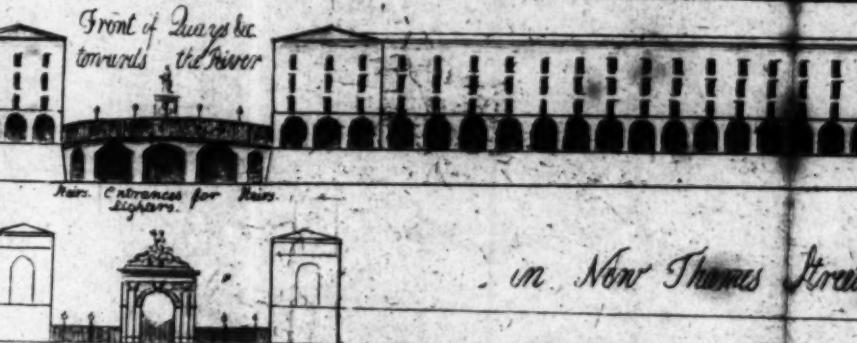


## Proposed Projection of Quarry according to the Merchant's Plan.

## Proposed Improvements.



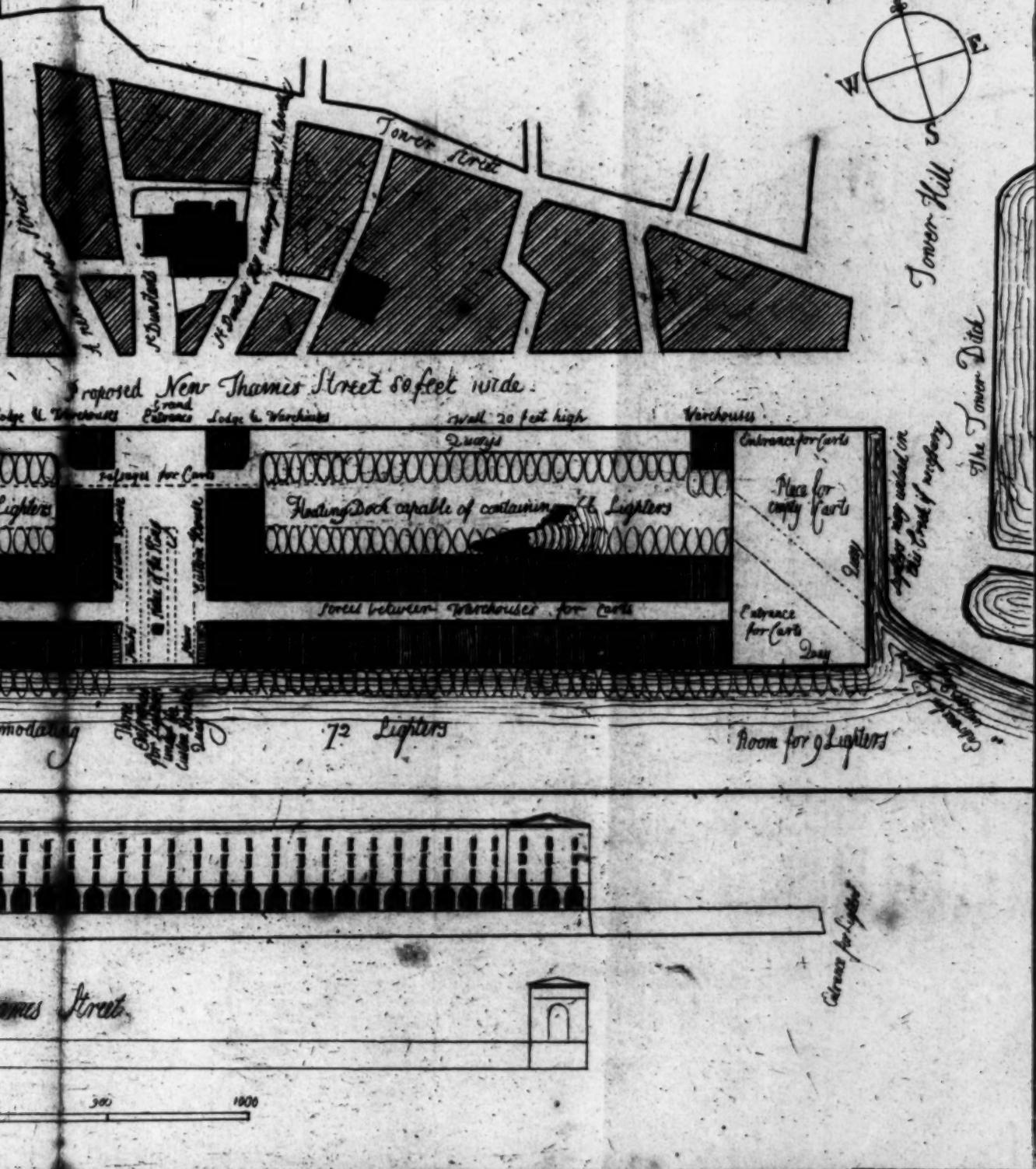
## *Front of Quays and Warehouses*



Scale of Feet.

Foot 100 200 300 400 500 600

Plate 3<sup>d</sup>



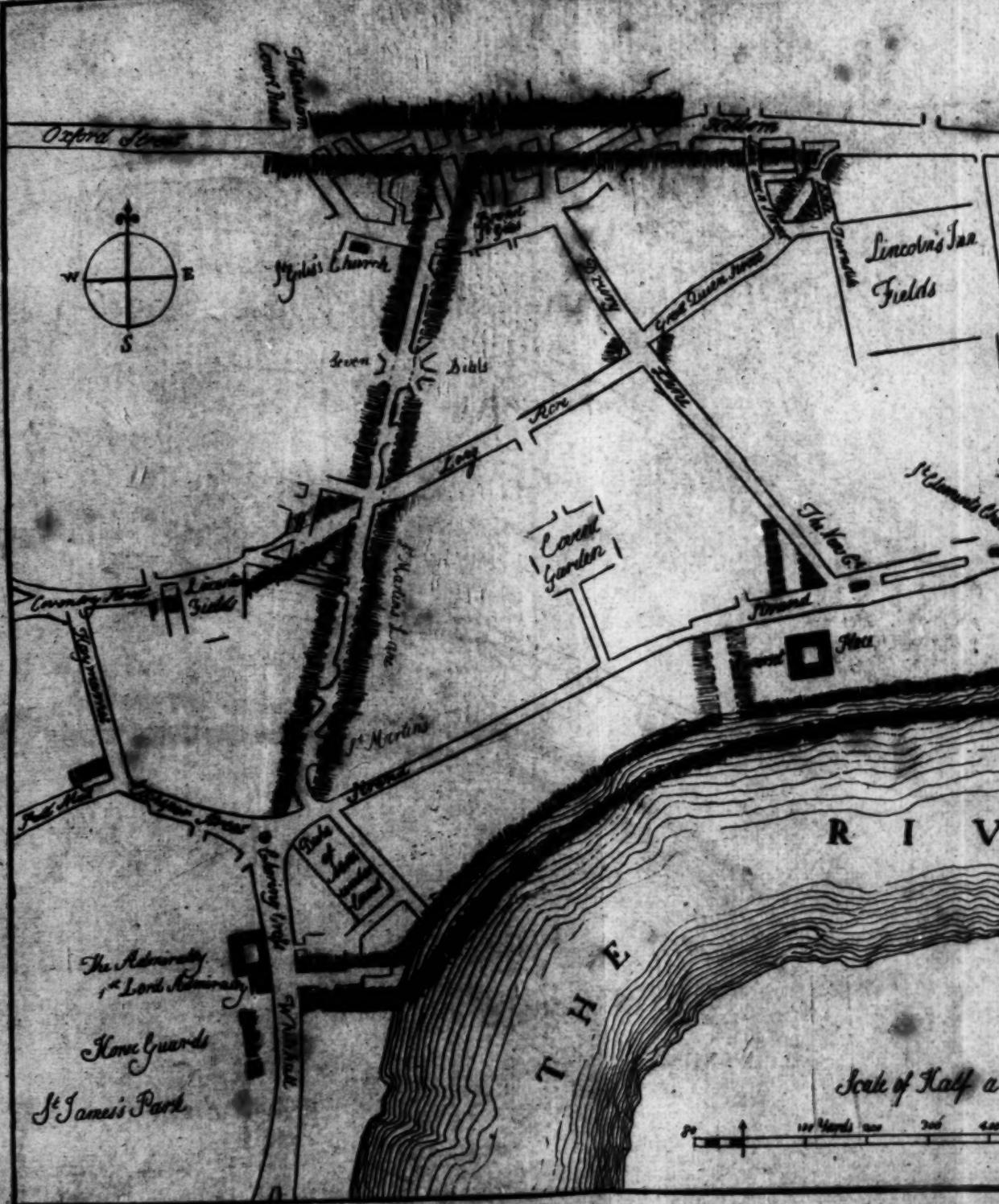


Plate 4.



of Half a Mile; or 880 Yards

200 400 500 600 700 800

I may be, as men in general are, to my own opinions, I really have no wish that my Plan, or any part of it, should be preferred to others on any other ground than its being found entitled to such preference. I thought it beneath me to dwell largely on its merits ; nor is elaborate writing necessary for displaying them. A very perfect idea of the improvements I propose may be obtained from the annexed Plans ; which, indeed, may be regarded as the principal part of the Work.



*Erratum.—P. 21. Note 1. L. 5. for are read in.*

F I N I S.

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